Access Serial Ports Driver (ASPS)

Windows driver for USB HID devices

Installation and Configuration

Contents

1. Acronyms

ASPS → Access Serial Ports

HID → Human Interface Device (A possible operating mode for many of our devices)

BGR → Boarding Gate Reader (A series of Access devices for the airport sector)

OCR → Optical Character Recognition

MRZ → Machine Readable Zone (The section of a document decoded using OCR i.e. bottom of a passport)

MSR → Magnetic Stripe Reading

DG1 → Data Group 1 (A data structure stored in an RFID chip)

COM → Communication Port (Serial port interface)

CR → Carriage Return (Control character 0x0D)

LF → Line Feed (Control character 0x0A)

2. Introduction

The Access Serial Ports driver (ASPS), allows our USB HID devices to be accessed via a single virtual serial port. It also provides powerful data parsing capabilities which, at the very basic level, allows easy implementation of custom prefixes and suffixes. The driver can also emulate keyboard mode which will output scanned data as keystrokes.

2.1. Supported Operating Systems (32 and 64 bit)

Windows 8 / 7 / Vista / XP

NOTE: Windows RT is NOT supported.

2.2. Supported Device List (USB HID only)

ATB: 422 / 423 / 425

AKB: 425

OCR: 310 / 310e / 312 / 313 / 315 / 315e / 316 / 316e / 322 / 323 / 342 / 343 / 601 / 640

LSR: 106 / 110 / 116 / 120 / 130

BGR: 135

2.3. File Locations

The latest version of ASPS can be downloaded from Access' downloads page at:

http://downloads.access-is.com/ASPS/ASPS_Installation.zip

3. Installation

NOTE: If installing on a SITA or ARINC machine, the installer will be completely automated with no user interaction required. In this case, to configure a virtual port for a USB BGR device, please see section 4.7.

1. Run the ASPSetup installation file. Depending on your User Account Control settings (UAC), you may be prompted by a pop up box asking if you want to *"allow the following program from an unknown publisher to make changes to this computer"*. Click **Yes**.

2. Review the license agreement and check the *"I accept the terms of the license agreement"* box to accept the license agreement terms. Click **Next**.
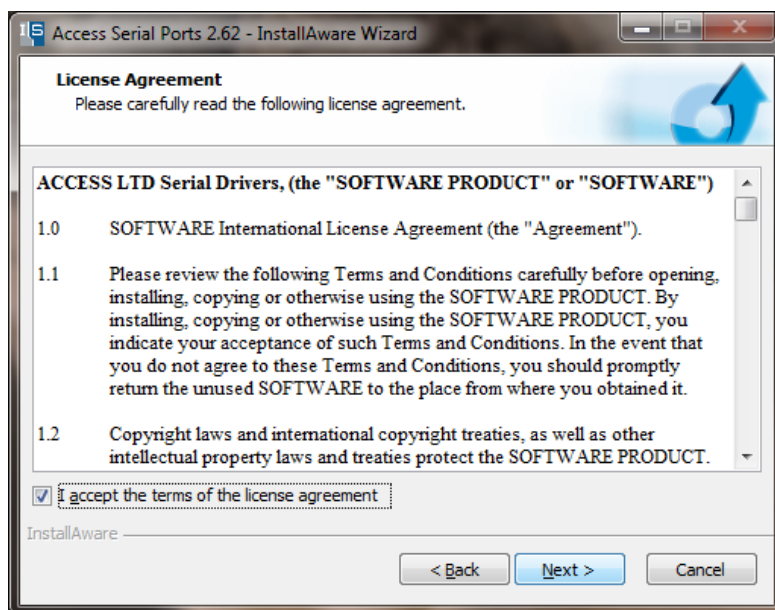
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Figure 1

3. On the setup screen, shown in figure 2, select ATBOCR and select a COM port from the drop down list to create a virtual com port for our ATB/OCR/LSR range of devices. Do the same for the BGR1 option if you want to use one of our USB BGR devices. When installing ASPS on a SITA or ARINC computer, you won't be presented with this setup screen, default options have already been chosen.

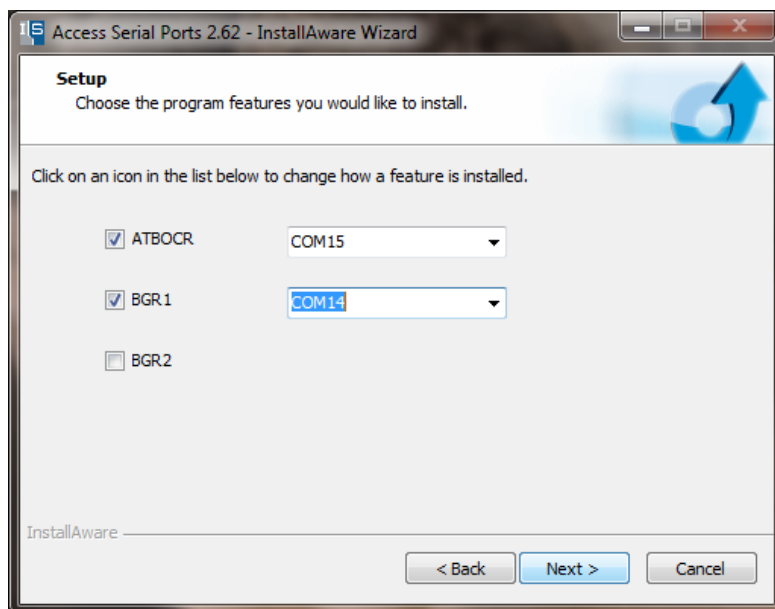4. When happy with the setup, click **Next**.

Figure 2

5. ASPS will begin to install and the progress should be displayed on screen.

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6. After the installation is complete, you will be told which ports have been installed and for what purpose. Click **Finish**.
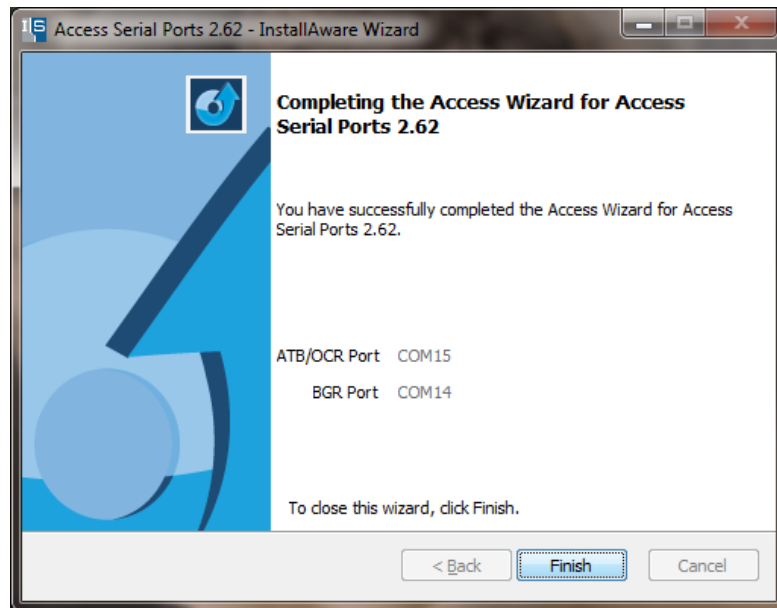
7. Restart the computer when asked.

Figure 3

4. Connecting to the Devices

Once ASPS has been installed and the computer restarted you can start to use your devices. By default all scanned data will be output via the virtual serial port ASPS installed (ATBOCR port during setup). Simply connect to the virtual serial port as you would a standard serial port and scan a document. You can download MTTTY to communicate with the virtual serial port here:

http://downloads.access-is.com/MTTTY.zip

Ensure you:

- Select the correct COM port in MTTTY (Baud rate / parity / data bits and stop bits are irrelevant when connecting to the ASPS virtual serial port)

- Tick the CR => CR/LF check box

- Click File → Connect

You can now scan documents into MTTTY.

If you would like to have certain document types be output as keystroke data then please read section 5 regarding configuration.

5. Configuration

When configuring the ASPS driver you will often find that you need to stop and start comserv. To do this, start a command prompt with administrative privileges and enter the following commands based on requirement:

- net stop comserv

- net start comserv

This will stop and start comserv respectively.

From ASPS version 2.67 and onwards, the Apply button now applies the current settings by restarting comserv.

5.1. ASPS Configuration Window

When ASPS has been installed, it can be configured in various ways. Press the **Windows Key + R** to bring up the run box and type **asps /full=1** before hitting **Enter**. You may be asked if you want to *"allow the following program from an unknown publisher to make changes to this computer"*. Click **Yes** and the window shown in figure 5 will appear.

Figure 5

5.2. ATB/OCR Port Settings

- **Com Port** → Change the virtual com port number here. The USB BGR virtual com port number can't be changed here.

- **Protocol** → Commonly used protocols, check one to use. The default setting is SITA.

- **Keyboard Mode** → Please use UNICODE mode if you are using keyboard output and the Windows default input language is non-English. This should ensure that any keystroke output is accurate.

- **Auxiliary Serial Port** → Access ATB keyboards come with an auxiliary serial port on the back so as to attach other devices, e.g. an LSR120 or handheld barcode scanner.

- **USB LSR Support Enabled** → Enable this option to support USB handheld scanners (4600 and 1900 models)

- **Use Data Link Escape Char** → Enable this option to escape all characters below 0x20 with a 0x10

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- **Enable OCR6xx** → Only used with our OCR6xx series of devices, this is an alternative to VideoOCR. Disable this if you are directly using the VideoOCR API. Enable this to have the data output over the virtual serial port.

  - **Enable Sound** → Enables the sounder in the unit.

  - **Enable Barcode** → Enables barcode support. (NOTE: Only available to units with barcoding dongle)

  - **Enable OCR** → Enables a document's MRZ to be decoded and output.

    - **Only If No DG1** → This option ensures that OCR data will only be output if DG1 does not exist (assuming MRZ is present).

  - **Enable DG1** → Enables a document's RFID DG1 to be decoded and output.

5.3. Settings

Use this tab to save the ASPS settings as a registry file. This is useful for two reasons:

1. Support → Allows us to accurately replicate your setup.

2. Deployment → If there are many machines to set up identically, saving the settings and applying them via a registry merge may save time.

Simply click **Save To File** and enter a file name before clicking **Save**.

5.4. Other Tabs

The other tabs refer to specific document types such as **OCR Passport**. You can individually configure the way these documents are parsed and output by creating specialised rules.

- **Output Type** → Select the desired output method for the data. The choice is:

  - **Serial** → The data is output by the virtual com port.

  - **Keyboard** → The data is output as keyboard strokes. In this mode, the **Protocol** specified in the **ATB/OCR Port Settings** tab is ignored meaning no prefixes or suffixes.

  - **Disabled** → Disable the output of that document type

- **Window & Class Name** → Can be used to explicitly define a window in which to output the keystrokes as opposed to outputting them to the window with the current focus.

- **Rules On** → Turns rules on or off

- **Rules** → Enables custom parsing of the data. Please see next section

5.5. Rules

The **New** button will bring up the window shown in Figure 2 allowing the creation of a new rule. Figure 6 shows an example to insert the last names from the OCR data with each name separated by a space. Entry controls are referred to numerically from left to right and top to bottom..
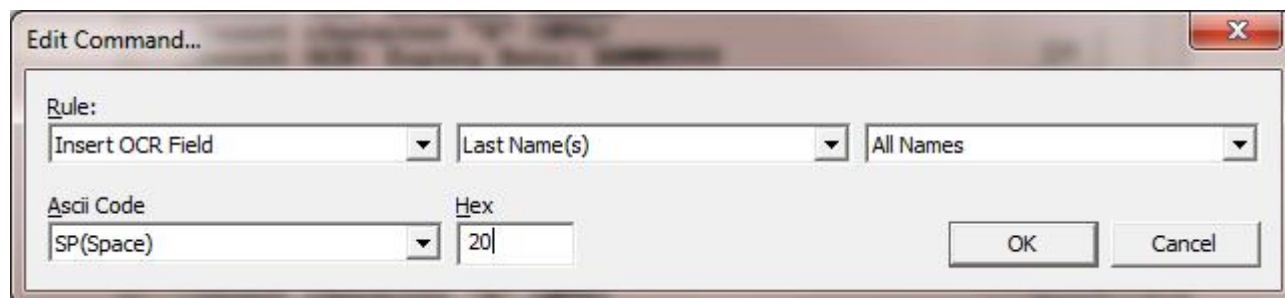

Figure 6

Insert OCR Field

This rule provides an easy way to insert OCR data from the swiped document.

- The second drop down control provides a list of possible OCR fields to use such as **Nationality** and **Date of Birth**.

- The third drop down control provides extra options for the selected field. For instance, with the OCR field **Expiry Date,** the control provides a choice of date formats for output.

- The **Ascii Code** and **Hex** controls are enabled for a select few OCR fields to insert characters. This allows you to insert characters between each name or between each section of a date.

Insert MSR Field

This rule provides an easy way to insert MSR data from the swiped card. (NOTE: Supports standard 2 & 3 track identification cards such as those used in financial transactions - ISO 7813 and ISO 4909) The method to use this rule is identical to that described in the "Insert OCR Field" section above.

Insert Barcode Field

This rule provides an easy way to insert barcode data from the scanned barcode. (NOTE:Supports M1 (single leg) airline boarding passes – IATA BCBP Resolution 792) The method to use this rule is identical to that described in the "Insert OCR Field" section above.

Insert RFID DG1 Field

This rule currently has just one function which is to include the ICAO Header as part of the data output.

Insert Generated Field

There are three possible "Generated Field Formats" available with this option:

1. ICAO Passport MRZ → Will attempt to reformat OCR data into an ICAO Passport format. Supported documents are ICAO compliant 2 and 3 line documents as well as Hong Kong Identificant Cards.

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2. Add Protocol Wrapper → Will wrap any data output up to this point with the currently configured protocol.

3. Add DLE → Will escape all characters below 0x20 with a 0x10 (DLE) character up to this point.

Move

This rule provides a way to move forwards or backwards through the data stream. The position is only altered by the **Move** & **Copy** commands and starts at position 0. The second drop down control is used to specify the direction to move and the **Hex** edit control is used to specify the number of characters to move.

Copy

This rule provides a way to output data from the current position. The second drop down control gives you the choice to copy:

- **Count** → A certain number of characters defined in the **Hex** edit control

- **To Search Result** → To the position found by the previous search rule (excluding or including the position)

Search

The search rule allows you to search for a specific character in the data stream specified by the **Hex** edit control. The search direction is controlled by the second drop down control.

Necessary Extra Rules

After writing the logic for a particular document type, four necessary rules need to be added to ensure the data is output and any errors are caught. In the correct order:

1. End Processing – Success
2. Restart Processing
3. End Processing – Abort
4. End Processing
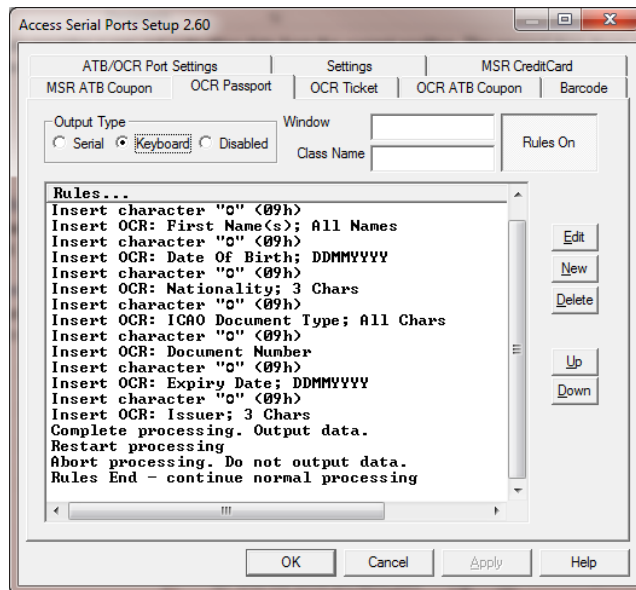
Figure 7 shows an example rule set.

Figure 7

5.6. Registry Settings

There are certain registry settings you can use to change the behaviour or ASPS. These are all found at: HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\ComServ\Parameters\Settings

When ASPS is uninstalled, reinstalled or upgraded, these settings are all deleted.

You must restart comserv if any of these settings are changed.

Logging

You can enable logging of ASPS events by typing **asps /log=on** into a command prompt with administrative privileges. This will add the required registry settings automatically and set them to default. Below is a table describing these registry settings.

Type	Name	Default	Description
REG_SZ	Log Directory	"C:\"	Specifies the directory to save the log files.
REG_DWORD	Log Enabled	1	Enables (1) or Disables (0) logging.
REG_DWORD	Log Max Generations	20	The maximum number of log files that are created before they start getting overwritten.
REG_DWORD	Log Max Size	15'000'000	Sets the maximum size of each file in bytes.

Keyboard Settings

The following is a list of available keyboard registry settings.

Type	Name	Default	Description
REG_DWORD	KeyboardRetainCase	0	When enabled (1), keyboard output will retain its case. When disabled (0),

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			keyboard output will automatically be capitalised.
REG_DWORD	KeyboardInterCharDelay	0	Sets the delay between character output in ms.

Inserting Characters & Windows Virtual Key Codes

Windows uses virtual key codes as a method of identifying keystrokes. Virtual key codes enable the insertion of special characters such as the function keys. A full list of virtual key codes can be found here:

http://msdn.microsoft.com/en-us/library/windows/desktop/dd375731(v=vs.85).aspx

To use the virtual key codes in the rules in ASPS:

1. Open the registry editor and add a new REG_DWORD called KeyboardVKCodesPrefix. The hexadecimal value should be set to something uncommon such as E0, this value will act as an identifier to tell ASPS that the character inserted after E0 should be treated as a virtual key code.

2. Use the **Insert Character** rule to enter the hexadecimal prefix value from step 1 into the **Hex** text box.

3. Use the **Insert Character** rule to insert the hexadecimal value of the virtual key code.

5.7. USB BGR Support

To add support for the USB BGR series, follow these steps:

1. Run the ASPSetup installation file. Depending on your User Account Control settings (UAC), you may be prompted by a pop up box asking if you want to *"allow the following program from an unknown publisher to make changes to this computer"*. Click **Yes**.

2. The window shown in figure 4 will appear. Select *"Modify Available Options"* and click **Next**.
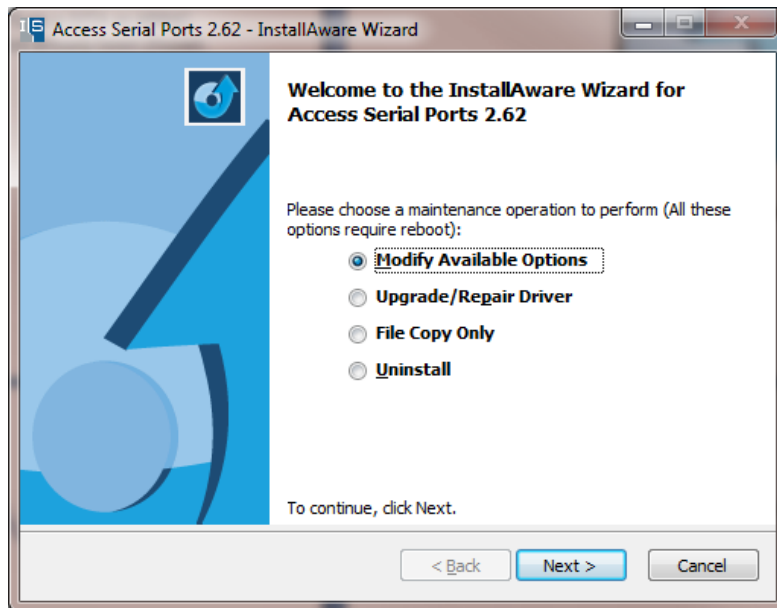
Figure 4

3. The window shown in figure 2 will appear. Check the **BGR1** box, select a COM port and click **Next**.

4. ASPS will begin to install the changes and the progress should be displayed on screen.

5. After the installation is complete, you will be told which ports have been installed/changed and for what purpose. Click **Finish**.

Restart the computer when asked.

6. Miscellaneous

6.1. Quiet Install Mode

The driver does provide a quiet install mode which requires no user interaction and shows no windows.

1. Create a link to the installation file

2. Right click the newly created link and select **Properties**.

3. Append a **/s** to the **Target** and click **OK**.

4. Run the ASPSetup installation file. NOTE: Run the installation file with full administrative privileges.

As the installation runs entirely silently, there are a few concerns:

- There will be no prompt to restart the PC after installation has completed. A restart is required however.

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- The installer will use the default com port 28 for the ATB/OCR Port and will not install a BGR port. To specify a specific port, before installing, open "ASPS_ComPort.reg" in a text editor. Find the *"PortName"="COM15"* line and change the port number. Save the file and merge it (double click on the registry file or right click → Merge).

6.2. Other Notes

When using the **Back** button on the install wizard, you may find it will not always direct you to the expected window.

7. Document History

Revision #	Approved By	Revision Details
1.0	CP	Initial release
1.1	CP	Updated to document template Added configuration details
1.2	CP	Updated for v2.63 → Keyboard Mode.
1.3	CP	Updated for v2.64 → Virtual key code support added.
1.4	CP	Updated for v2.66 → Added several useful registry settings.
1.5	CP	Updated for v2.67 → Reorganised the document.
1.6	CP	Updated for v2.72 → VideoOCR changes. Additional rules added. Acronyms page.

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European EMC directive 89/336/EEC

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FCC Compliance Statement (United States)

This equipment generates, uses and can radiate radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a class A computing device in accordance with the specifications in Subpart J of part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area may cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference. Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Canadian Department of Communications RFI statement

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